

## CLAIMS

We claim:

1. A biochip cartridge comprising:
  - a) a reaction chamber comprising:
    - 5 i) a substrate comprising an array of electrodes, each comprising:
      - A) a self-assembled monolayer; and
      - B) a capture binding ligand;
    - ii) an inlet port for the introduction of reagents; and
  - b) interconnects to allow the electrical connection of said electrodes to a
    - 10 processor.
2. A biochip cartridge according to claim 1 wherein said capture binding ligands are capture probes.
3. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises a gasket to retain fluid in contact with said array.
- 15 4. A biochip cartridge according to claim 1 further comprising a seal on said inlet port.
5. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises an outlet port.
6. A biochip cartridge according to claim 1 wherein said reaction chamber is configured to minimize the introduction or retention of air bubbles upon introduction of a sample.
- 20 7. A biochip cartridge according to claim 1 wherein said array is on one surface of said substrate.
8. A biochip cartridge according to claim 1 wherein two surfaces of said substrate each comprise an array.
9. A biochip cartridge according to claim 1 further comprising a cap comprising at least one
  - 25 storage well comprising assay reagents.
10. A device for multiple biochip analysis comprising at least two stations configured to receive a biochip cartridge.

11. A device according to claim 10 wherein at least one station comprises a thermocontroller.
12. A device according to claim 10 wherein every station comprises a thermocontroller.
13. A device according to claim 10 wherein at least one station comprises a signalling system.
14. A device according to claim 10 wherein at least one station comprises a memory chip  
5 reader.
15. A device according to claim 10 wherein at least one station comprises a barcode reader.
16. A device according to claim 10 wherein at least one station comprises a memory chip  
writer.
17. A device according to claim 10 wherein at least one station comprises an encryption  
10 system.
18. A device according to claim 10 further comprising at least two biochip cartridges.
19. A device according to claim 10 further comprising a liquid handling system.
20. A device according to claim 10 further comprising a wireless communication component.
21. A device according to claim 10 further comprising a device board.
- 15 22. A device according to claim 10 further comprising a processor.
23. A device according to claim 10 further comprising a global positioning system.